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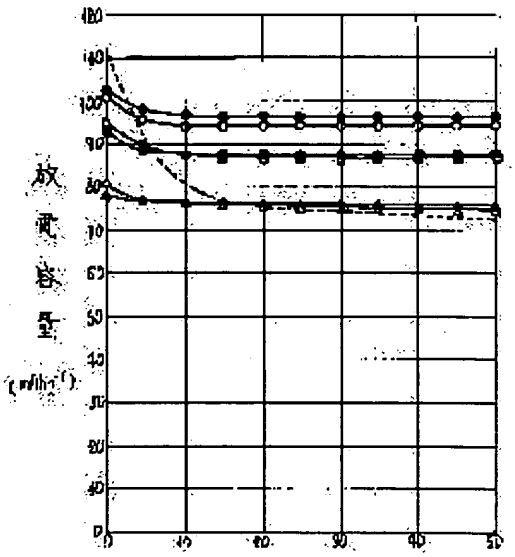
(54) NON-AQUEOUS ELECTROLYTE SECONDARY BATTERY

(57)Abstract:

PURPOSE: To provide a secondary battery formed by using non-aqueous electrolyte and having an excellent cycle characteristic by using composite oxide made by partially replacing Li in material represented by chemical formula LiNiO2 with at least one of Na and K, for a positive electrode active material.

CONSTITUTION: In a chemical formula LixMyO2 (wherein M is at least one of Na and K) a positive electrode including active material wherein values of x and y in the formula meet conditions of 0<x+y<=1.0 and 0<y<=0.3, a negative electrode using either of lithium, lithium alloy or carbon material into and from which lithium can be inserted and extracted respectively as an active material and non-aqueous material are used to construct a battery. By using such a positive electrode, a non-aqueous electrolyte secondary battery having good cycle time characteristic can be provided.



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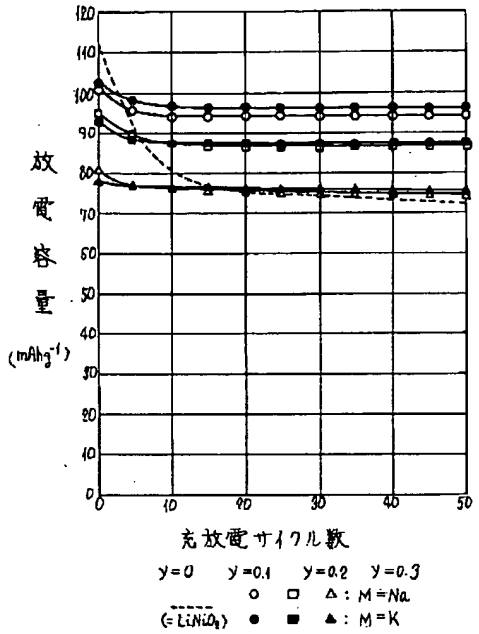
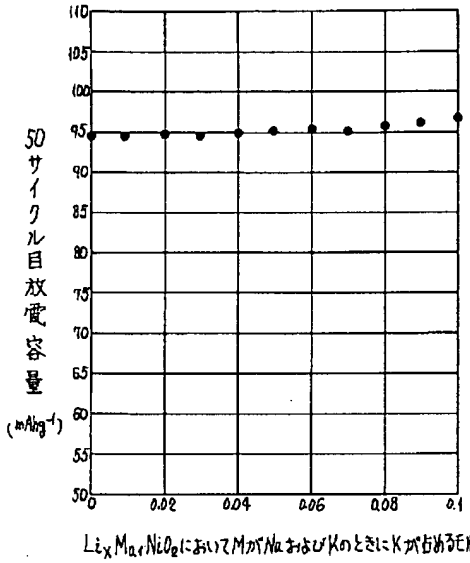
【図3】



【図4】



フロントページの続き

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ば正極活物質として化学式$Li_xM_yNiO_2$（但し、MはNa，Kの少なくとも1種）において、式中のxおよびyの値が$0<x+y\leqq1.0$、かつ$0<y\leqq0.3$の条件を満たすものを用いることにより、サイクル特性に優れた非水電解液二次電池を得ることができる。

【図面の簡単な説明】

【図1】本発明の実施例における円筒形電池の縦断面図

【図2】$Li_xM_yNiO_2$（但し、MはNa，Kの少なくとも1種）で、yの値の違いによる初期放電容量の違いを示す図

【図3】$Li_xM_yNiO_2$（但し、MはNa，Kの少なくとも1種）で、yの値の違いによる充放電サイクル特

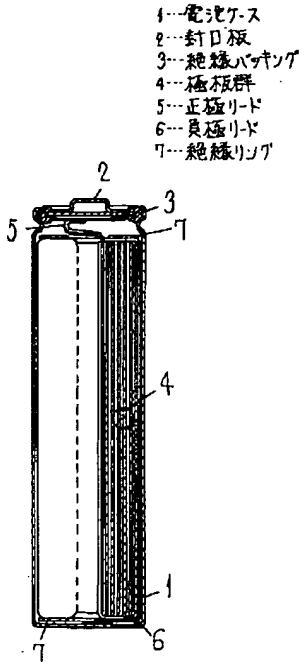
性の違いを示す図

【図4】$Li_xM_{0.1}NiO_2$（但し、MはNa，Kの少なくとも1種）で、Mに占めるKとNaの比率の違いによる充放電50サイクル目の放電容量の違いを示す図

【符号の説明】

1　電池ケース
2　封口板
3　絶縁パッキング
4　極板群
5　正極リード
6　負極リード
7　絶縁リング

【図1】



【図2】